AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Currently Amended)** An optical channel analyzing switch for selecting from among a first plurality of channels, comprising:

an optical coupler for each of said first plurality of channels to receive an input optical signal and generate a pass-through output optical signal and an analyzable output optical signal;

a receiver for each of said first plurality of channels coupled to receive said analyzable output optical signal and to convert said analyzable output optical signal into an analyzable electrical signal;

a multiplexor coupled at a plurality of multiplexor inputs to each of said analyzable electrical signals, said multiplexor to select a multiplexor output from one of said analyzable electrical signals;

a retimer coupled at said multiplexor output for generating a retimed data signal from said one of said analyzable electrical signals; and

a transmitter for converting said retimed data signal such that said retimed data signal approximates said input optical signal and complies with input signal requirements of a network analyzer to which the retimed data signal is to be transmitted

wherein said transmitter further comprises a cascade port coupled to said retimed data signal for coupling to a second optical channel analyzing switch having a second plurality of channels, said optical channel analyzing switch capable of multiplexing a channel from among said first plurality of channels and said second plurality of channels for coupling with said network analyzer.

2. **(Original)** The optical channel analyzing switch, as recited in claim 1, wherein said retimer comprises:

a clock recovery circuit for recovering said clock signal from said one of said analyzable electrical signals at said multiplexor output and generating a clock signal and a data signal therefrom;

at least one reference clock for providing a reference clock to said clock recovery circuit; and

a flip-flop for receiving said clock signal and said data signal and generating said retimed data signal.

3. **(Original)** The optical channel analyzing switch, as recited in claim 2, wherein said at least one reference clock is user selectable from among a plurality of frequencies.

4. **(Original)** The optical channel analyzing switch, as recited in claim 3, wherein said reference clock operates at one of a frequency compatible with Gigabit Ethernet and Fibre Channel frequencies.

5. **(Cancelled)**

6. **(Original)** The optical channel analyzing switch, as recited in claim 1, wherein said optical coupler isolates said receiver from said input optical signal when said receiver is non-operational to continue to generate said pass-through output optical signal.

7. **(Original)** The optical channel analyzing switch, as recited in claim 1, wherein the transmitter converts said retimed data signal from an electrical form to an optical form.

8. **(Original)** The optical channel analyzing switch, as recited in claim 1, wherein the transmitter converts said retimed data signal such that said retimed data signal retains its electrical form and is transduced to comply with the input signal requirements of the network analyzer.

9. **(Currently Amended)** In an optical channel analyzing switch for selecting from among a plurality of channels, a method for switching one of said plurality of channels of data transmitted over a plurality of optical fibers to a network analyzer without disturbing data transmission on said plurality of channels, said method comprising the steps of:

for each of said plurality of channels of data, splitting an input optical signal into a pass-through optical signal and an analyzable output optical signal;

for each of said plurality of analyzable output optical signals, converting said analyzable output optical signal into an analyzable electrical signal;

multiplexing said plurality of analyzable electrical signals to select one of said analyzable electrical signals as a multiplexor output;

retiming said one of said analyzable electrical signals to generate a retimed data signal; ~~and~~

converting said retimed data signal such that said retimed data signal approximates said input optical signal and complies with input signal requirements of a network analyzer to which the retimed data signal is to be transmitted;

operably coupling in a cascade arrangement said retimed data signal with a second optical channel analyzing switch having a second plurality of channels; and

multiplexing a channel from among said first plurality of channels and said second plurality of channels for coupling with said network analyzer.

10. **(Original)** The method for switching one of a plurality of channels of data, as recited in claim 9, wherein said retiming step comprises the steps of:

recovering a clock signal and a data signal form said one of said plurality of analyzable electrical signals; and

converting said clock signal and said data signal into said retimed data signal.

11. **(Original)** The method for switching one of a plurality of channels of data, as recited in claim 10, wherein said retiming step further comprises the step of:

supplying at least one reference clock to recover said clock signal and said data signal from said one of said plurality of analyzable electrical signals.

12. **(Original)** The method for switching one of a plurality of channels of data, as recited in claim 11, wherein said retiming step further comprises the step of:

selecting said reference clock from among a plurality of frequencies compatible with Gigabit Ethernet and Fibre Channel frequencies.

13. **(Cancelled)**

14. **(Original)** The method for switching one of a plurality of channels of data, as recited in claim 9, wherein said splitting an input optical signal step further comprises the step of:

isolating said pass-through output optical signal from said analyzable output optical signal such that upon non-operation on said analyzable output optical signal, data on said pass-through output optical signal is not affected.

15. **(Currently Amended)** A network evaluation system, comprising:

a network analyzer; and

an optical channel analyzing switch for transmitting a retimed data signal corresponding to any of a first plurality of channels to the network analyzer so as to enable the network analyzer to analyze the retimed data signal, said optical channel analyzing switch including:

an optical coupler for each of said first plurality of channels to receive an input optical signal and generate a pass-through output optical signal and an analyzable output optical signal;

a receiver for each of said first plurality of channels coupled to receive said analyzable output optical signal and to convert said analyzable output optical signal into an analyzable electrical signal;

a multiplexor coupled at a plurality of multiplexor inputs to each of said analyzable electrical signals, said multiplexor to select a multiplexor output from one of said analyzable electrical signals;

a retimer coupled at said multiplexor output for generating a retimed data signal from said one of said analyzable electrical signals; and

a transmitter for converting said retimed data signal such that said retimed data signal approximates said input optical signal and complies with input signal requirements of the network analyzer;

wherein said transmitter of said optical channel analyzing switch further comprises a cascade port coupled to said retimed data signal for coupling to a second optical channel analyzing switch having a second plurality of channels, said optical channel analyzing switch capable of multiplexing a channel from among said first plurality of channels and said second plurality of channels for coupling with said network analyzer.

16. **(Original)** The network evaluation system, as recited in claim 15, wherein said retimer of said optical channel analyzing switch comprises:

a clock recovery circuit for recovering said clock signal from said one of said analyzable electrical signals at said multiplexor output and generating a clock signal and a data signal therefrom;

at least one reference clock for providing a reference clock to said clock recovery circuit; and

a flip-flop for receiving said clock signal and said data signal and generating said retimed data signal.

17. **(Original)** The network evaluation system, as recited in claim 16, wherein said at least one reference clock of said optical channel analyzing switch is user selectable from among a plurality of frequencies.

18. **(Original)** The network evaluation system, as recited in claim 17, wherein said reference clock of said optical channel analyzing switch operates at one of a frequency compatible with Gigabit Ethernet and Fibre Channel frequencies.

19. **(Cancelled)**

20. **(Original)** The network evaluation system, as recited in claim 15, wherein said optical coupler of said optical channel analyzing switch isolates said receiver from said input optical signal when said receiver is non-operational to continue to generate said pass-through output optical signal.

21. **(Currently Amended)** An optical channel analyzing system for selecting an optical input signal from among a plurality of optical input signals carried by a plurality of optical channels, comprising:

a first optical channel analyzing switch including:

a plurality of optical couplers, each being associated with a particular one of the plurality of optical channels, wherein each optical coupler is capable splitting an optical input signal carried by the associated optical channel so as to not interfere with network traffic of the optical channel;

a retimer that receives an analyzable electrical signal derived from one of the optical signals, wherein the retimer recovers a clock signal and a data signal from the optical signal, such that a retimed electrical signal with reduced noise can be generated; ~~and~~

a transmitter for converting the retimed electrical signal into a retimed optical analyzable output signal that approximates said one of the optical input signals and that can be transmitted to a network analyzer;

a second optical channel analyzing switch connected with said first optical channel analyzing switch, wherein the retimed electrical signal has noise that is sufficiently reduced such that either the first or second optical channel analyzing switch can be used to process the optical input signals split by the optical couplers of the first optical channel analyzing switch; and

a third optical channel analyzing switch connected with said second optical channel analyzing switch, wherein the retimed electrical signal has noise that is sufficiently reduced such that either the first, second or third optical channel analyzing switch can be used to process the optical input signals split by the optical couplers of the first optical channel analyzing switch.

22. **(Cancelled)**

23. **(Cancelled)**

24. **(Currently Amended)** An optical channel analyzing system as recited in ~~claim 23~~ claim 21, further comprising a fourth optical channel analyzing switch connected with said third optical channel analyzing switch, wherein the retimed electrical signal has noise that is sufficiently reduced such that either the first, second, third or fourth optical channel analyzing switch can be used to process the optical input signals split by the optical couplers of the first optical channel analyzing switch.

25. **(Original)** An optical channel analyzing system as recited in claim 21, further comprising:

a receiver associated with the plurality of channels that are capable of converting the optical input signals to analyzable electrical signals; and

a multiplexor coupled at a plurality of multiplexor inputs to each of the analyzable electrical signals, said multiplexor to select a multiplexor output from one of said analyzable electrical signals, wherein the retimer receives said analyzable electrical signal derived from said one of the optical signals from the multiplexor output.

26. **(Original)** An optical channel analyzing system as recited in claim 21, further comprising a flip-flop for receiving said clock signal and said data signal and generating said retimed electrical analyzable signal with reduced noise.